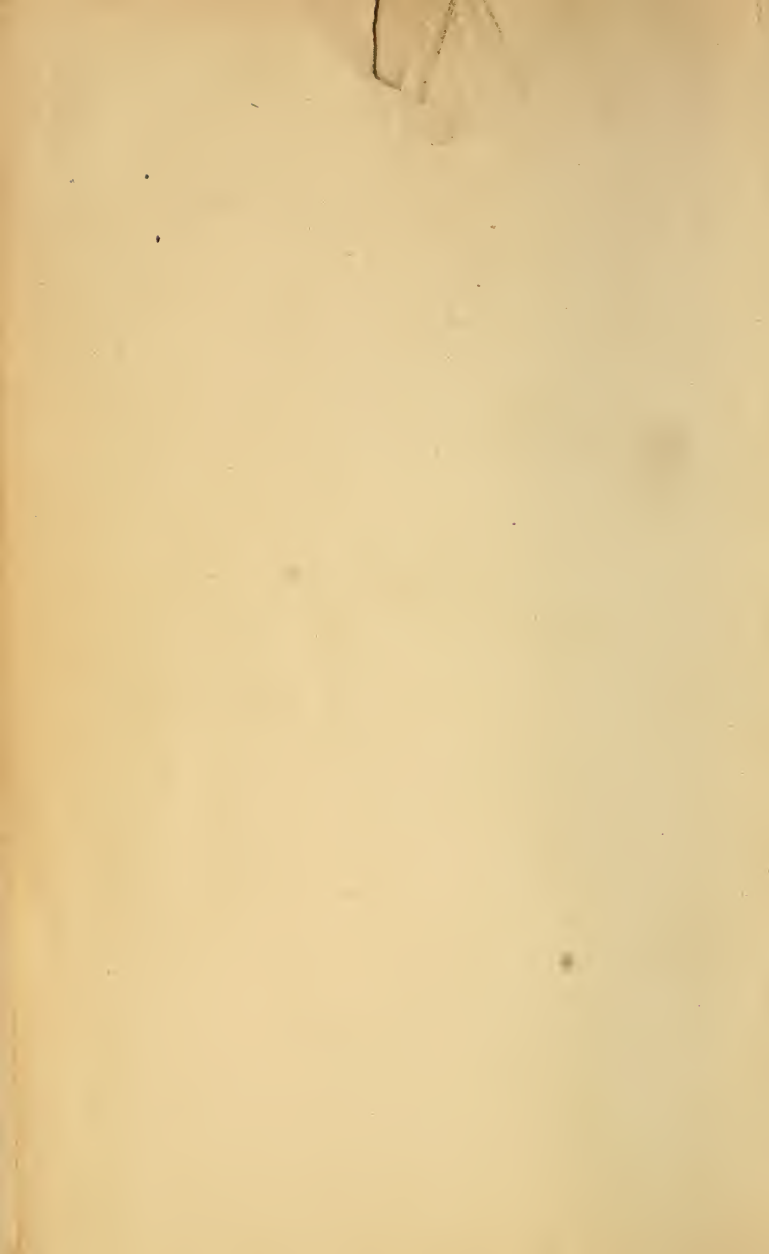


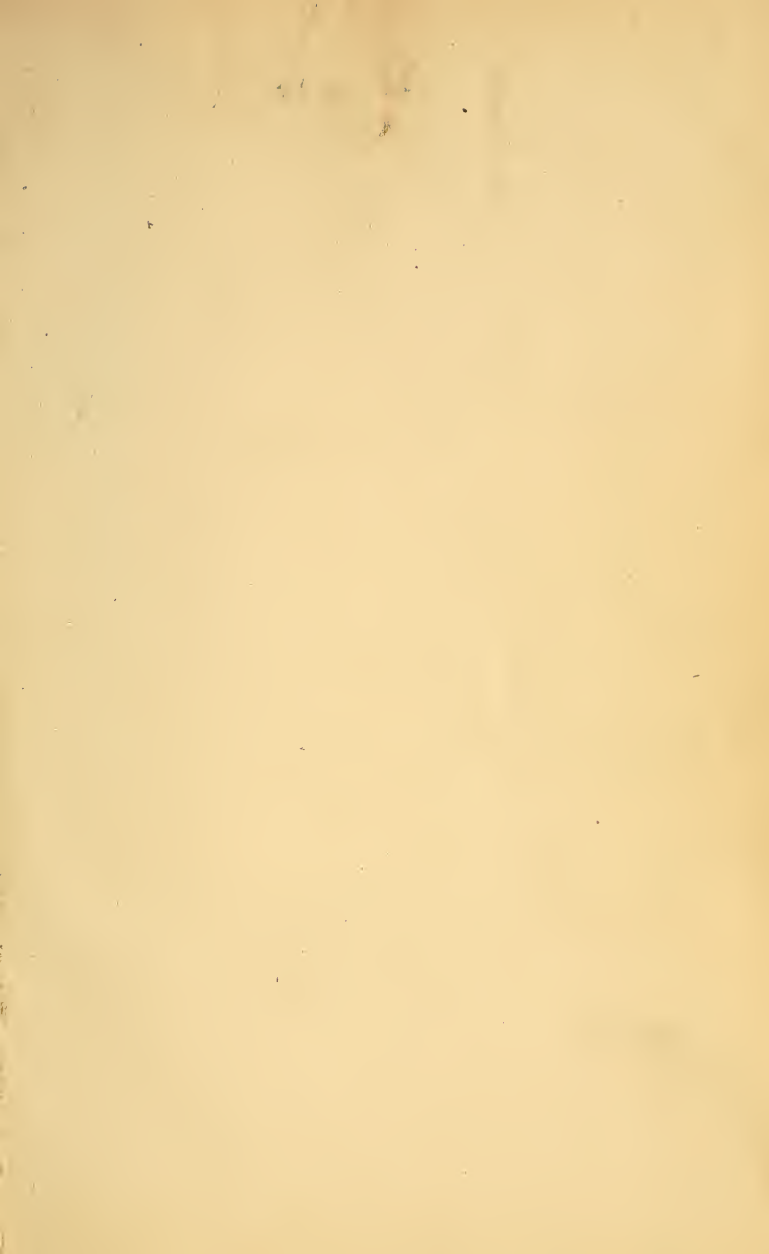
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NINETY-FOURTH

ANNUAL CATALOGUE

OF THE

MEDICAL SCHOOL

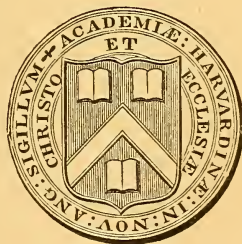
(BOSTON)

OF

HARVARD UNIVERSITY.

1876-77.

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1876.



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THE MEDICAL SCHOOL.

BOSTON.

THE plan of study in this school was radically changed in 1871. Instruction is given by lectures, recitations, clinical teaching, and practical exercises uniformly distributed throughout the academic year. The year begins on the Thursday following the last Wednesday in September,* and ends on the last Wednesday in June. It is divided into two equal terms, with a recess of one week between them. There is also a recess of one week at Christmas. The second term begins Monday, February 12, 1877. Either of these two terms is more than equivalent to the former "Winter Session," as regards the amount and character of the instruction.

The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another, in a just and natural order.

In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is substituted for, or added to, the usual didactic lectures, and is as much required of every student as attendance at lectures and recitations.

Instead of the customary oral examination for the degree of Doctor of Medicine, held at the end of the three years' period of study, a series of written examinations on all the main subjects of medical instruction has been distributed for regular students through the whole three years. Every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction at some time during his period of study.

Members of any one department of Harvard University have a right to attend lectures and recitations in any other department without paying additional fees. Students in the Medical School, who wish to avail themselves of this opportunity of pursuing scientific or other studies, may do so without loss of time counted as medical study, to such extent and in such manner as the Medical Faculty shall in each case prescribe. Undergraduates intending to study medicine are advised to pay special attention to the study of Natural History, Chemistry, Physics, and the French and German languages, while in college.

* That the time of study shall count as a full term, students must present themselves within the first week of the term.

FACULTY.

CHARLES W. ELIOT, LL.D., *President.*

CALVIN ELLIS, M.D., *Dean, and Jackson Professor of Clinical Medicine.*

JOHN B. S. JACKSON, M.D., *Shattuck Professor of Morbid Anatomy,*
and *Curator of the Anatomical Museum.*

OLIVER W. HOLMES, M.D., *Parkman Professor of Anatomy.*

HENRY J. BIGELOW, M.D., *Professor of Surgery.*

JOHN E. TYLER, M.D., *Professor of Mental Diseases.*

CHARLES E. BUCKINGHAM, M.D., *Professor of Obstetrics and*
Medical Jurisprudence.

FRANCIS MINOT, M.D., *Hersey Professor of the Theory and Practice of*
Physic.

JOHN P. REYNOLDS, M.D., *Instructor in Obstetrics.*

HENRY W. WILLIAMS, M.D., *Professor of Ophthalmology.*

DAVID W. CHEEVER, M.D., *Professor of Clinical Surgery.*

JAMES C. WHITE, M.D., *Professor of Dermatology.*

ROBERT T. EDES, M.D., *Professor of Materia Medica.*

HENRY P. BOWDITCH, M.D., *Professor of Physiology.*

FREDERICK I. KNIGHT, M.D., *Instructor in Percussion, Auscultation,*
and *Laryngoscopy.*

CHARLES B. PORTER, M.D., *Demonstrator of Anatomy and Instructor*
in Surgery.

JOHN C. WARREN, M.D., *Instructor in Surgery.*

REGINALD H. FITZ, M.D., *Assistant Professor of Pathological Anatomy.*

WILLIAM L. RICHARDSON, M.D., *Instructor in Clinical Obstetrics.*

THOMAS DWIGHT, M.D., *Instructor in Histology.*

EDWARD S. WOOD, M.D., *Professor of Chemistry.*

HENRY H. A. BEACH, M.D., *Assistant Demonstrator of Anatomy.*

WILLIAM B. HILLS, M.D., *Instructor in Chemistry.*

OTHER INSTRUCTORS.

GEORGE F. H. MARKOE, *Instructor in Materia Medica.*

FRANK W. DRAPER, M.D., *Lecturer on Hygiene.*

The following gentlemen will give special clinical instruction:—

FRANCIS B. GREENOUGH, M.D., and EDWARD WIGGLES-
WORTH, M.D., *in Syphilis.*

JOHN O. GREEN, M.D., and C. J. BLAKE, M.D., *in Otology.*

WILLIAM H. BAKER, M.D., *in Diseases of Women.*

CHARLES P. PUTNAM, M.D., and JOSEPH P. OLIVER, M.D.,
in Diseases of Children.

SAMUEL G. WEBBER, M.D., and JAMES J. PUTNAM, M.D.,
in Diseases of the Nervous System.

STUDENTS.

Course for Graduates.

Garlick, Samuel Middleton, M.D. (<i>Dart. Coll.</i>),	<i>Northampton.</i>
Hodges, Edward Francis, M.D. (<i>Georgetown, D.C.</i>),	<i>Boston.</i>
Howard, William Wells, M.D.,	<i>Boston.</i>
Kemp, Edwin Augustine, M.D. (<i>Univ. of Vt.</i>),	<i>Enfield.</i>
Loring, Robert Pearmain, M.D.,	<i>Newton.</i>
Maxwell, Warren Brown, M.D. (<i>Dart. Coll.</i>),	<i>Wells, Me.</i>
Tilden, George Horton, M.D.,	<i>Boston.</i>
White, Robert, M.D.,	<i>Boston.</i>
Wright, Thomas Russell, M.D. (<i>Univ. of Ga.</i>),	<i>Augusta, Ga.</i>

Third Class.

Avery, Alonzo Moffitt,	<i>Galena, Ill.</i>
Ballou, Charles Olney,	<i>Providence, R.I.</i>
Bancroft, Charles Parker, A.B.,	<i>Concord, N.H.</i>
Bancroft, Winfred Baxter, A.B. (<i>Amherst Coll.</i>),	<i>Boston.</i>
Booth, Edward Chauncey, A.B.,	<i>Somerville.</i>
Brannan, John Winters, A.B.,	<i>Cincinnati, O.</i>
Bryant, John, A.B.,	<i>Boston.</i>
Clark, Charles Edward, A.B. (<i>Bowd. Coll.</i>),	<i>Boston.</i>
Collins, George Lewis, PH.B. (<i>Brown Univ.</i>),	<i>Providence, R.I.</i>
Cummings, Edwin Francis,	<i>Taunton.</i>
Daniels, Edwin Alfred,	<i>Newton.</i>
Deming, William Nelson,	<i>Providence, R.I.</i>
Dwight, James, A.B.,	<i>Boston.</i>
Elliot, John Wheelock, A.B.	<i>Keene, N.H.</i>
Ellis, Edward Dyer, A.B. (<i>Middlebury Coll.</i>),	<i>Fairhaven, Vt.</i>
Fairbanks, Charles Albert, S.B. (<i>Dart. Coll.</i>),	<i>Dover, N.H.</i>
Farlow, John Woodford, A.B.,	<i>Newton.</i>
Fitz, Samuel Eaton, A.B.,	<i>Boston.</i>
Foster, Charles,	<i>Boston.</i>
Foster, James Richards,	<i>N. Attleboro'.</i>
French, Samuel William, A.B.,	<i>Boston.</i>
Gannett, William Whitworth, A.B.,	<i>Cambridge.</i>
Geary, John Chapman,	<i>Boston.</i>
Green, Charles Montraville, A.B.,	<i>Boston.</i>
Greenwood, Sewell Elliott,	<i>Hubbardston.</i>
Hamilton, Albinus Otis,	<i>Newton.</i>
Harrington, John Richard,	<i>Cranston, R.I.</i>
Holbrook, Uriah Hopkins, A.B. (<i>Brown Univ.</i>),	<i>Providence, R.I.</i>
Howard, Arthur Chadwick,	<i>Boston.</i>
Hunt, William Otis,	<i>Newtonville.</i>
Hunt, Willis Henry,	<i>Providence, R.I.</i>
Johnson, John Waldo,	<i>Framingham.</i>

Kelley, George Wallace,	<i>Boston.</i>
Kilby, Henry Sherman, A.B.,	<i>Boston.</i>
Leland, George Adams, A.B. (<i>Amherst Coll.</i>),	<i>Boston.</i>
Mason, William Castein, A.B.,	<i>Bangor, Me.</i>
Mathewson, Charles Brenton, A.B. (<i>Brown Univ.</i>),	<i>E. Greenwich, R.I.</i>
Mills, George Westgate, S.B. (<i>Mass. Agric. Coll.</i>),	<i>Medford.</i>
Minot, James Jackson, A.B.,	<i>Boston.</i>
Morse, Henry Lee, A.B.,	<i>Boston.</i>
Moseley, William Oxnard, A.B.,	<i>Boston.</i>
Peters, Edward Dyer,	<i>Boston.</i>
Rand, Alfred, A.B.,	<i>Boston.</i>
Read, George Mumford,	<i>Providence, R.I.</i>
Shaw, Thomas Pierpont, A.M., LL.B.,	<i>Lowell.</i>
Smith, Frederick Arnold,	<i>Springfield.</i>
Smith, Sheffield,	<i>N. Providence, R.I.</i>
Souther, William Towle, A.B. (<i>Yale Coll.</i>),	<i>Worcester.</i>
Swift, John Baker, A.M. (<i>Amherst Coll.</i>),	<i>Boston.</i>
Tuttle, George Thomas, A.B. (<i>Dart. Coll.</i>),	<i>Lynn.</i>
Walker, Charles Rumford, A.B. (<i>Yale Coll.</i>),	<i>Concord, N.H.</i>
Walton, Alfred,	<i>Boston.</i>
White, Luther Robinson, A.B. (<i>Bates Coll.</i>),	<i>Lewiston, Me.</i>
White, William Robbins, A.B. (<i>Dart. Coll.</i>),	<i>Cavendish, Vt.</i>
Whittemore, Fred Webster,	<i>Cambridge.</i>
Williams, Francis Henry, S.B. (<i>Mass. Inst. Tech.</i>),	<i>Boston.</i>
Woodward, Samuel Bayard, A.B.,	<i>Worcester.</i>

Second Class.

Abeles, Edward,	<i>Leavenworth, Kans.</i>
Ambrose, George Booth,	<i>Chelsea.</i>
Bacon, Jonas Edward, A.B.,	<i>Woburn.</i>
Bennett, Luther William,	<i>Boston.</i>
Bowditch, Vincent Yardley, A.B.,	<i>Boston.</i>
Broughton Henry White, A.B.,	<i>Jamacia Plain.</i>
Bullard, William Norton, A B.,	<i>Boston.</i>
Burns, Robert,	<i>Lancaster, N.H.</i>
Burrell, Herbert Leslie,	<i>Boston.</i>
Carvelle, Henry de Wolfe,	<i>Boston.</i>
Chisholm, Adam Stuart Muir,	<i>Newtonville.</i>
Curley, John Patrick,	<i>Newport, R.I.</i>
Donovan, Samuel Magner,	<i>Boston.</i>
Dougherty, James Joseph,	<i>Lowell.</i>
Emerson, William Carroll, A.B.,	<i>Haverhill.</i>
Faden, Andrew Clarence,	<i>Boston.</i>
Ferris, Edward Mortimer, A.B.,	<i>Brookline.</i>

Field, Charles Elmer, A.B. (<i>Brown Univ.</i>),	<i>Brockton.</i>
Fuller, Frank Boutelle, A.B. (<i>Bates Coll.</i>),	<i>Wilton, Me.</i>
Galvin, George William,	<i>Boston.</i>
Gregg, John Argeloe,	<i>Somerville.</i>
Haddock, Charles Whitney,	<i>Beverly.</i>
Ham, Otis French,	<i>Belmont.</i>
Hayward, George Griswold,	<i>Milton.</i>
Holmes, Walter Hamlin, A.B. (<i>Bowd. Coll.</i>),	<i>Calais, Me.</i>
Hun, Henry, PH.B. (<i>Sheffield Scientific School</i>),	<i>Albany, N.Y.</i>
Johnson, William Louis,	<i>Cambridge.</i>
Keene, George Frederick, A.B. (<i>Brown Univ.</i>),	<i>Providence, R.I.</i>
Kelly, William Philip,	<i>Boston.</i>
McCarty, James Joseph,	<i>Lowell.</i>
Mixter, Samuel Jason, S.B. (<i>Mass. Inst. Tech.</i>),	<i>Boston.</i>
Peavey, George Arthur,	<i>Moultonboro', N.H.</i>
Phipps, Walter Andrus,	<i>Hopkinton.</i>
Platt, Walter Brewster, PH.B. (<i>Yale Coll.</i>),	<i>Waterbury, Conn.</i>
Plimpton, Lewis Henry, A.B.,	<i>Walpole.</i>
Prince, Morton Henry, A.B.,	<i>Boston.</i>
Rix, Frank Reader, A.B.,	<i>Lowell.</i>
Rollins, William Hubert, D.M.D.,	<i>Brookline.</i>
Sawyer, William Brewster, A.B. (<i>Amherst Coll.</i>),	<i>Easthampton.</i>
Seymour, William Wotkyns, A.B. (<i>Yale Coll.</i>),	<i>Troy, N.Y.</i>
Smith, George Edward,	<i>Zanesville, O.</i>
Smith, Jonathan Jason,	<i>Somerville.</i>
Stockwell, Charles Bliss, A.B. (<i>Olivet Coll.</i>),	<i>Port Huron, Mich.</i>
Viles, Clarence Albertus,	<i>Lowell.</i>
Watson, Francis Sedgwick, A.B.,	<i>Milton.</i>
West, George Webb, A.B.,	<i>Salem.</i>
Wheeler, John Brooks, A.B. (<i>Univ. of Vt.</i>),	<i>Burlington, Vt.</i>
Williams, Harold, A.B.,	<i>Brookline.</i>
Woodman, Walter, A.B.,	<i>Cambridge.</i>
Wyman, Samuel Edwin, A.B.,	<i>Arlington.</i>

First Class.

Abbott, Charles Edward,	<i>Andover.</i>
Allen, Dudley Peter, A.B. (<i>Oberlin Coll.</i>),	<i>Oberlin, O.</i>
Batchelder, George Henry Clement,	<i>Newburyport.</i>
Battey, Henry Halcy,	<i>Rome, Ga.</i>
Bean, Charles Edwin,	<i>Chelsea.</i>
Blandy, Henry Johnson, A.B.,	<i>Zanesville, O.</i>
Bowers, Walter Prentice,	<i>Clinton.</i>
Bradley, Daniel Webster, A.B. (<i>Dart. Coll.</i>),	<i>Fryeburg, Me.</i>

Brown, Page,	<i>San Francisco, Cal.</i>
Broyer, Constant,	<i>Melbourne, Australia.</i>
Bullard, James Hovey, A.B.,	<i>Holliston.</i>
Carter, George Joseph,	<i>Boston.</i>
Chapman, Charles Bates,	<i>Worcester.</i>
Clarke, Samuel Bartlett,	<i>Salem.</i>
Cleaves, James Edwin, A.B.,	<i>Medford.</i>
Clement, George Colburn,	<i>Boston.</i>
Clifford, Arthur, A.B.,	<i>New Bedford.</i>
Comey, Perley Pierce,	<i>Worcester.</i>
Curran, William Henry,	<i>Marlboro'.</i>
Davis, William, A.B.,	<i>Plymouth.</i>
Da Fonseca, Edmundo Guayraz,	<i>San Paulo, Brazil.</i>
De Barros, Fernao Paes,	<i>San Paulo, Brazil.</i>
Dixon, Robert Brewer,	<i>Damariscotta, Me.</i>
Drew, Frank Haynes,	<i>Boston.</i>
Durell, Thomas Moulton,	<i>Somerville.</i>
Dyer, Willard Knowlton,	<i>Boston.</i>
Eaton, Wyllis Gilbert, A.B. (<i>Dart. Coll.</i>),	<i>Lowell.</i>
Eldridge, George Homans, A.B.,	<i>Boston.</i>
Englesby, Leverett Francis, A.B. (<i>Univ. of Vt.</i>),	<i>Boston.</i>
Ernst, Harold Clarence, A.B.,	<i>Boston.</i>
Fenno, Henry Marshall,	<i>Somerville.</i>
Fraser, Donald Allan,	<i>Boston.</i>
Fuller, Franklin Davis,	<i>Norwich, Conn.</i>
Fuller, Fred, A.B. (<i>Colby Univ.</i>),	<i>Boston.</i>
Gardner, Guy Hubbard,	<i>Winchester.</i>
Garrigan, Thomas James,	<i>Worcester.</i>
Grandin, Egbert Henry, A.B.,	<i>New-York City.</i>
Grout, Charles Henry,	<i>Worcester.</i>
Hall, David Graham,	<i>Boston.</i>
Hall, Newbert Jackson,	<i>Boston.</i>
Harmon, Samuel Tappan,	<i>Boston.</i>
Hartley, Richard Cook Borden,	<i>Fall River.</i>
Hill, Charles Edwin, A.B. (<i>Yale Coll.</i>),	<i>E. Killingly, Conn.</i>
Hinds, Francis Edward,	<i>Boston.</i>
Holbrook, William Edward, A.B. (<i>Amherst Coll.</i>),	<i>Palmer.</i>
Hooker, Charles Parker,	<i>Springfield.</i>
Hooper, Horace Nathaniel, A.B.,	<i>Boston.</i>
Jaques, Henry Percy, A.B.,	<i>Boston.</i>
Johnson, Frederick William, A.B. (<i>Amherst Coll.</i>),	<i>Bradford.</i>
Keating, James Edward,	<i>Milford.</i>
Keating, Thomas Francis, A.B. (<i>Holy Cross Coll.</i>),	<i>Portland, Me.</i>
Kibbey, William Beckford,	<i>Washington, D.C.</i>
Kyle, Flavill Winslow,	<i>Boston.</i>
Larrabee, Walter Willis,	<i>Boston.</i>

Leonard, Henry Fiske,	<i>Southbridge.</i>
Mallett, Charles Howard,	<i>Bath, Me.</i>
Manton, Walter Porter,	<i>Boston.</i>
Meador, Charles Eugene,	<i>Cambridge.</i>
Monks, George Howard, A.B.,	<i>Boston.</i>
Montgomery, Frank, A.B. (<i>Yale Coll.</i>),	<i>New-York City.</i>
Mudge, Henry Sanford, A.B.,	<i>Boston.</i>
Mullen, Francis Henry,	<i>Boston.</i>
Noble, Arthur Green,	<i>Boston.</i>
Noonan, Michael Charles,	<i>Lowell.</i>
Noyes, Charles Henry,	<i>Gardner.</i>
Noyes, Ernest Henry, A.B. (<i>Bowd. Coll.</i>),	<i>Newburyport.</i>
O'Brien, John Joseph,	<i>Worcester.</i>
Osman, Charles Franklin,	<i>Boston.</i>
Otis, Walter Joseph,	<i>Chicago, Ill.</i>
Parker, Theodore Edson,	<i>Lowell.</i>
Parsons, Azariah Worthington,	<i>Somerville.</i>
Peckham, Cyrus Tracy, A.B.,	<i>Ledyard, Conn.</i>
Penteado, José Bonifacio Leite,	<i>San Paulo, Brazil.</i>
Perkins, Thomas Lyman,	<i>Salem.</i>
Perry, Eben Greely,	<i>Boston.</i>
Pomroy, Herbert Jason,	<i>Providence, R.I.</i>
Prescott, Benjamin Taylor,	<i>Boston.</i>
Price, Russel Clarence,	<i>Waukegan, Ill.</i>
Randall, James Munroe,	<i>Woburn.</i>
Robbins, Elliot Daniel,	<i>Springfield.</i>
Rogers, Gorham Davis,	<i>Newbury.</i>
Ruddock, Edward Josiah, A.B. (<i>Amherst Coll.</i>),	<i>Greenfield.</i>
Sampson, Frederic Albert,	<i>Lawrence.</i>
Scoboria, Charles Quantic,	<i>N. Somerville.</i>
Scully, Francis Patrick,	<i>Medford.</i>
Shepstone, James Albert,	<i>Gardner.</i>
Shores, Erwin Isaac,	<i>Suffield, Conn.</i>
Simmons, William Turner,	<i>Boston.</i>
Smith, Thomas Perkins, A.B. (<i>Bates Coll.</i>),	<i>Ashland, N.H.</i>
Sprague, William Lawrence, A.B.,	<i>Boston.</i>
Standish, Myles, A.B. (<i>Bowd. Coll.</i>),	<i>Cambridge.</i>
Stanton, Jere Edmund,	<i>Boston.</i>
Stetson, Edwin Flye,	<i>Damariscotta, Me.</i>
Stevens, John Cornell,	<i>New York, N.Y.</i>
Strong, Charles Pratt, A.B.,	<i>E. Bridgewater.</i>
Sullivan, Dennis Aloysius,	<i>Lawrence.</i>
Swarts, Gardner Taber,	<i>Providence, R.I.</i>
Terry, Herbert, S.B. (<i>Cornell Univ.</i>),	<i>Fairhaven.</i>
Thompson, Joseph Marshall,	<i>Providence, R.I.</i>

Upton, William Clark,	<i>Waukegan, Ill.</i>
Wade, Edric Allan,	<i>Lawrence.</i>
Walton, George Lincoln, A.B.,	<i>Westfield.</i>
Warren, Franklin Cooley,	<i>Boston.</i>
Warren, Lewis Jonathan, A.B. (<i>Yale Coll.</i>),	<i>Killingly, Conn.</i>
Warren, Louis Raymond,	<i>Terre Haute, Ind.</i>
Warren, Nathan Alonzo,	<i>Worcester.</i>
Webber, Frederick Ward,	<i>Cambridge.</i>
Weld, Charles Goddard,	<i>Boston.</i>
Whitcombe, Charles Reed, A.B. (<i>Williams Coll.</i>),	<i>Cambridge.</i>
Wolcott, Willard,	<i>Hartford, Conn.</i>
Woodward, Josiah Nichols,	<i>Pepperell.</i>
Yenetchi, Henry Ainsworth,	<i>Charlestown.</i>
Young, Charles William Fenelon,	<i>Cambridge,</i>
Young, John Francis.	<i>Boston.</i>

SUMMARY.

GRADUATES' COURSE	9
THIRD CLASS	56
SECOND CLASS	51
FIRST CLASS	114
<hr/>	
TOTAL	230

THE MEDICAL SCHOOL.

REQUISITES FOR ADMISSION.

All students seeking admission to the Medical School must present a degree in Letters or Science from a recognized college or scientific school, or pass an examination, in June or September, in the following subjects:—

1. **LATIN.** The translation of easy Latin prose. French or German will be accepted, however, as a substitute for Latin.

2. **PHYSICS.** Candidates will be required to show such a knowledge of this subject as may be obtained from Balfour Stewart's elementary works on Physics.

The examinations will be conducted in writing; and, in judging the work of the candidate, the spelling, grammar, and construction will be considered.

Graduates in medicine will not be required to pass this examination on joining the school.

DIVISION OF STUDIES.

First year.—Anatomy, Physiology, and General Chemistry.*

Second year.—Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, and Clinical Surgery.

Third year.—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

COURSE OF INSTRUCTION.

The following methods of instruction are adopted in the several departments:—

Anatomy.—Lectures; various practical exercises, including abundant dissection under the direction of the Demonstrator; recitations from text-books; histology.

Physiology.—Lectures, recitations, and practical demonstrations in the laboratory. To students of the second and third classes, opportunities are given for original investigations in the laboratory.

Chemistry is taught mainly by practical work in the laboratory, the student having his own desk and apparatus. General Chemistry and qualitative analysis are taught during the first year. Beside the laboratory work, there is a lecture and a recitation every week. In the second year, medical chemistry is taught by lectures and laboratory work.

* Any student who shall have previously passed in the Undergraduate Department or Scientific School of Harvard University an examination in General Chemistry (including qualitative analysis) will be exempt from examination in this branch, and may pursue the study of Medical Chemistry during his first year.

Pathological Anatomy is taught by lectures, recitations, and practical instruction in pathological histology. The collection of the Warren Anatomical Museum is used to illustrate the lectures, and many morbid specimens are shown in a fresh state. Students also receive practical instruction in the method of making autopsies, to which they are admitted at both hospitals. Special classes in pathological histology, including the diagnosis of tumors, are formed for those who are provided with a microscope. Such students are required to prepare the various objects. The school possesses a number of microscopes for the use of those students whose means will not permit the purchase of an instrument.

Materia Medica and Therapeutics.—*Materia Medica* is taught by lectures and practical demonstrations. *Therapeutics*, or the physiological action of drugs and their application to disease, is taught in the third year by lectures.

The Theory and Practice of Medicine.—Lectures, recitations, and hospital visits.

Clinical Medicine.—Daily instruction is given in this department by hospital visits and other exercises. Students are furnished with cases for personal examination, and are called upon to report them before the class, where they are criticised. These examinations are held both in the wards and in the amphitheatre. Another exercise, known as the "Clinical Conference," affords an opportunity for more thorough preparation of cases, more time being allowed for their study. The full written report of a case is read by the student who has examined it. It is afterwards criticised by the class, by the Professor of Clinical Medicine, and other teachers in the school. In addition to this, a regular course of supplementary instruction is given in Auscultation and Percussion, and in Laryngoscopy, which affords students an abundant opportunity for acquiring a thoroughly practical knowledge of these methods of exploration.

Surgery.—Lectures and recitations. There are also courses on Surgical Anatomy, Minor Surgery, Surgical Histology, Bandaging, and Operative Surgery. In the latter, students of the third class are supplied with material for repeating the usual surgical operations.

Instruction in Clinical Surgery is given at the Massachusetts General Hospital and City Hospital throughout the year, as follows:—

FIRST TERM.—Clinical Lectures on cases, per week, 2; Surgical Visits in the hospital wards, per week, 3; public operating days, per week, 2. Per week, 7.

SECOND TERM.—Clinical Lectures on cases, per week, 1; Surgical Visits in the hospital wards, per week, 3; public operating days, per week, 3. Per week, 7.

The Professor of Clinical Surgery holds an exercise twice a week, in winter, at the City Hospital.

Clinical Surgery is there taught, in two ways: 1st, by bedside exami-

nations of the students in the hospital wards; 2d, by a surgical conference, at which the advanced students make a full report of a surgical case in writing, which is then criticised by their fellow-students, and by the Professor. The case is completed, whenever practicable, by an exhibition of, or operation on, the patient, — on the spot.

Obstetrics. — Lectures and recitations. Students are instructed in the usual operations on the manikin, and will have opportunities to take charge of cases of midwifery in their third year. A course of operative midwifery, with practical illustrations on the cadaver, is given.

Diseases of Women and Children. — Lectures and Clinical Instruction.

Mental Diseases. — Lectures.

Ophthalmology. — A complete course is delivered upon the diseases of the eye, including clinical instruction and the use of the ophthalmoscope.

Dermatology is taught by lectures and clinical illustrations. The large number of out-patients at the Massachusetts General Hospital furnishes ample opportunities for illustration.

Syphilis. — Recitations and clinical instruction.

Otology. — Lectures and clinical instruction.

Laryngoscopy, Auscultation, and Percussion. — Lectures and Demonstrations.

Diseases of the Nervous System. — Lectures and Demonstrations.

Hygiene. — Lectures.

TEXT-BOOKS.

The following works are recommended as text-books and for collateral reading: —

Text-Books.

Collateral Reading.

ANATOMY.

Gray, Wilson, Leidy.

Hodges's Practical Dissections.

Holden's Manual.

Quain (Edition of 1867).

Holden's Osteology.

Stricker's Manual of Histology.

Frey's Microscopic Technology.

Tyson's Cell Doctrine.

PHYSIOLOGY.

Dalton's Human Physiology.

Carpenter's Principles of Human Physiology.

Kirkes's Hand-book of Physiology.

Huxley's Elementary Lessons in Physiology.

Pavy on Food and Dietetics.

Hermann, Grundriss der Physiologie der Menschen.

Fick, Compendium der Physiologie.

Fick, Medicinische Physik.

Sanderson's Hand-book for the Physiological Laboratory.

Flint's Physiology of Man.

GENERAL CHEMISTRY.

Bloxam's Chemistry.

Galloway's Qualitative Analysis.

Miller's Elements of Chemistry.

MEDICAL CHEMISTRY.

Harley on Urine.

Reese's Manual of Toxicology.

Ralfe, Outlines of Physiological Chemistry.

Gorup-Besanez, Physiologische Chemie.

Neubauer und Vogel, Analyse des Harns.

Taylor on Poisons.

Tardieu, Étude médico-légale et clinique sur l'Empoisonnement.

MATERIA MEDICA.

Parrish's Pharmacy.

United States Pharmacopœia.

United States Dispensatory.

PATHOLOGICAL ANATOMY.

Wagner's Manual of General Pathology.

Jones and Sieveking's Pathological Anatomy (Payne's edition).

Virchow's Cellular Pathology.

Rindfleisch's Pathological Histology.

Wilks's Pathological Anatomy (Moxon's edition).

Delafield's Post-Mortem Examinations.

THERAPEUTICS.

H. C. Wood's Therapeutics.

Stillé's Therapeutics and Materia Medica.

Ringer's Therapeutics.

Nothnagel, Arzneimittellehre.

OBSTETRICS.

Leishman's System of Midwifery.

Schroeder's Manual of Midwifery.

Cazeaux's Midwifery.

THEORY AND PRACTICE.

Flint's Practice of Medicine.

Da Costa's Medical Diagnosis.

Reynold's System of Medicine.

Aitken's Science and Practice.

SURGERY.

Bryant's Practice of Surgery.

Billroth's Surgical Pathology.

Heath's Minor Surgery and Bandaging.

Bellamy on Surgical Anatomy.

Guérin, Éléments de Chirurgie Opératoire.

Holme's System of Surgery.

Cooper's Surgical Dictionary (1872).

The tabular views on the following pages will illustrate the distribution of studies throughout the year:—

FIRST TERM, 1876-77.

FIRST YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Histology, till Jan.	Laboratory.	Laboratory.	Histology, till Jan.	Laboratory.	Laboratory.
10	Histology, till Jan.	Laboratory.	Laboratory.	Histology, till Jan.	Chemistry. R.	Physiology R.
11	Physiology. L.	Physiology. L.	Chemistry. L.	Laboratory.	Physiology. L.	
12	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Museum.
1	Last 11 w'ks, Anatomy. L.	Anatomy. L.	Anat. R. first 8 weeks. Anat. L. last 11 weeks.	Anatomy. L.	Anatomy. R.	
5	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	

SECOND YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Vis.	B. C. H. Med. Visit. Bost. Disp.	Clin. Med. L.	M. G. H. Med. Visit	Boston Dispensary.	
10	Path. Anat. L. Aus. & Per.	Clin. Surg. L. After Dec. 1. Aus. & Per.	Aus. & Per.	Aus. & Per.	B. C. H. Surg. Visit. Aus. & Per.	M. G. H. Surg. Visit. Aus. & Per.
11	Clin. Surg. L.				B. C. H. Op.	M. G. H. Op.
12		Chemistry. L.		Materia Medica.	Chemistry. R.	Museum.
3	Path. Hist.	Path. Anat. R.	Path. Anat. L.	Path. Hist.	Prac. Anat. R.	
4			Surgery. R.	Clin. Con.		
5	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	

THIRD YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Visit. Eye and Ear Infirmary.	B. C. H. Med. Visit. Bost. Disp.	Clinical Medicine. L.	M. G. H. Med. Vis. Eye and Ear Infirmary.	B. C. H. Ophthal and Otology. Bost. Disp.	Diseases of Nervous Sys.
10	Theo. and Prac. L.	Clin. Surg. L. after Dec. 1.	Dermatol. Clinical.	Theo. and Prac. L.	B. C. H. Surg. Visit.	M. G. H. Surg. Visit. Diseases of Children.
11	Clin. Surg. L.		Surgery. L.	Surgery. L.	B. C. H. Op Diseases of Children.	M. G. H. Op.
12	Obstetrics. L.	Till Dec. Surgery L. After Dec 1. Diseases of Nerv. Sys.	Obstetrics. L.	Obstetrics. R.	Venereal Diseases.	Museum.
3		Theo. and Prac. R.		Ophthal.	Theo. and Prac. R.	
4	Therap. L.	Dermatol. L.	Therap. R.	Clin. Con.	Therap. L.	

SECOND TERM, 1876.

FIRST YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.
10	Laboratory.	Embryology in May.	Laboratory.	Embryology in May.	Chemistry. R.	Physiology. R.
11	Chemistry. L.	Physiology. Conf.	Physiology. L.	Laboratory.	Physiology. L.	
1	Anatomy. L. till May.	Anat. L. or R. till May.	Laboratory.	Anatomy. L. till May.	Anatomy. R. till May.	Museum.
3	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	
5	Prac. Anat. till May.	Prac. Anat. till May.	Prac. Anat. till May.	Prac. Anat. till May.	Prac. Anat. till May.	

SECOND YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Visits.	B. C. H. Med. Visits. Bost. Disp.	Mat. Med.	Mat. Med.	B. C. H. Bost. Disp.	Clin. Med.
10	Clin. Med. Aus. & Per.*	B. C. H. Clin. Surg. till April 1. After Ap. 1, Med. Visits. Aus. & Per.	M. G. H. Surg. Vis. Aus. & Per.	M. G. H. Med. Visits. Aus. & Per.	B. C. H. Surg. Visits. Aus. & Per.	M. G. H. Surg. Visits. Aus. & Per.
11	Path. Anat. L.		M. G. H. Op. Reg. Anat. after Ap. 1.	Path. Anat. L.	B. C. H. Op.	M. G. H. Op.
12	Surg. Conf. till April 1. Regional Anat. after April 1.	Chemistry. L.	Chemistry. R.	M. G. H. Surg. Con.		Museum.
3	Path. Hist.	Path. Anat. R.	Surgery. R.	Path. Hist.	Path. Anat. R.	
4			Clin. Conf.			

THIRD YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Visits. Eye and Ear Infirmary.	B. C. H. Med. Visits. Bost. Disp.	Dermatol. Clinical.	Ophthal. L. Diseases of Nerv. Sys.	B. C. H. Ophthal. Clin. Otol. Eye and Ear Infirmary.	
10	Clin. Med.	B. C. H. Clin. Surg. till April 1. After Ap. 1, Med. Vis.	M. G. H. Surg. Vis.	M. G. H. Med. Vis.	B. C. H. Surg. Visits. Bost. Disp.	M. G. H. Surg. Visits.
11	Theo. and Prac. L.		M. G. H. Op.	Theo. and Prac. L.	B. C. H. Op.	M. G. H. Op.
12	Surg. Con. till April 1.	Diseases of Nervous Sys.	Obstetrics. L.	Ment. Dis. till May 1.		Museum.
3	Therap. R.	Theo. and Prac. R.		Hygiene after Ap. 15.	Theo. and Prac. R.	
4	Therap. L.	Dermatology	Clin. Con.	Obstetrics. R.	Therap. L.	Venereal Diseases, after Ap. 15.

* During the early part of the term, a practical course in Laryngoscopy will be substituted for this exercise.

CLINICAL ADVANTAGES.

The Medical department of the University is established in Boston, in order to secure those advantages for Clinical Instruction and for the study of Practical Anatomy which are found only in large cities.

There are Hospital visits or operations daily.

The Massachusetts General Hospital. — During the past year 1,989 patients were treated in the wards, and 16,993 in the out-patient departments. Patients are received from all parts of the United States and the Provinces, and are visited by the students with the attending physicians and surgeons. The opportunities for becoming acquainted with general surgery are very great. Operations are numerous, and are performed in the amphitheatre, which is provided with seats for 400 persons. Clinics in the following special branches have been established in connection with the out-patient department: Dermatology, Laryngoscopy, Electro-therapeutics.

The Hospital is adjacent to the Medical College, and its wards are open to the students on four days in the week.

The City Hospital. — During the past year, 3,421 cases were treated in its wards, and 9,413 in its various out-patient departments. The Medical wards always contain many cases of acute diseases, and changes are taking place constantly. The opportunities for seeing fractures, injuries, and traumatic cases of all kinds, are excellent, since, on an average, 800 street accidents are yearly treated. Surgical operations are performed in the amphitheatre. These include general surgical, and also ophthalmic, operations. Diseases of the eye, the ear, and the skin are largely treated in the out-patient department. Clinical instruction is given by the physicians and surgeons twice a week.

In these two Hospitals the facilities for witnessing Operative Surgery are unsurpassed. Twice a week in the first term, and three times a week in the second term, operations are performed in the presence of the class. The number of these operations is large, reaching nearly *two thousand* a year. The variety is great; embracing every surgical disease and injury, including the surgical operations on the eye and ear.

The Massachusetts Charitable Eye and Ear Infirmary. — The eight thousand patients annually treated at this institution present every variety of disease of the ear and eye, and supply a large number of operations.

The Marine Hospital at Chelsea receives from the shipping of the port a large number of patients, who furnish examples of the diseases of foreign countries, and of distant parts of the United States. Many cases of venereal disease in its various forms are treated annually.

The Boston Dispensary. — Forty-one thousand patients were treated at this Public Charity during the past year. Students have excellent opportunities to see minor surgery, and many of the diseases of children, and to practise auscultation and percussion.

Hospital Appointments. — From eighteen to twenty students are selected annually for House Officers of the various Hospitals. Appointments to the Boston Lying-in Hospital are for a term of three months.

EXAMINATIONS.

The regular examinations are held in the following order :—

At the end of the first year: Anatomy, Physiology, and General Chemistry.*

At the end of the second year: Medical Chemistry, Materia Medica, and Pathological Anatomy.

At the end of the third year: Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

The regular examinations are held at the end of each year in June; and a week before the opening of the School in September, on the studies of the preceding year.†

No student shall be allowed to anticipate the examinations in the regular course of studies of his year, except by special permission of the Faculty. No student shall be allowed to present himself for examination in any branch, without notifying the Dean by letter that he intends to do so, one month before the time when the examination is to be held.

The examinations are conducted mainly in writing. For specimens of the latest examination papers, see pp. 23–32. No student will receive his degree until he has passed a satisfactory examination in all the above-mentioned subjects, and presented a certificate from the Demonstrator of Anatomy that he has satisfactorily dissected the three parts of the body. Those who fail in any subject may present themselves in that subject again at the next regular examination. The regular examinations for the year 1876–77 will begin June 11th and September 24th.

DIVISION OF STUDENTS.

Students are divided into three classes, according to their time of study and proficiency.

Students may be admitted to advanced standing in the regular course; but all who apply for admission into the second or third year's class must pass an examination at the beginning of the year in the branches already pursued by the class to which they seek admission, and furnish a satisfactory‡ certificate of time spent in medical studies. No student shall advance with his class, or be admitted to advanced standing, until he has passed the required examination in the studies of the year, or a majority of them; nor shall he become a member of the third class until he has passed all the examinations of the first, in addition to a majority of those of the second, year.

* See foot-note on page 10.

† The June examination is for those only who are members of the School at the time, and for those entitled to apply for the degree.

‡ Certificates from teachers who practise any peculiar or exclusive system of medicine are not accepted.

Students who do not intend to offer themselves for a degree will, however, be received at any part of the course for one term or more.

Any student may obtain, without an examination, a certificate of his period of connection with the School.

REQUIREMENTS FOR A DEGREE.

Every candidate must be twenty-one years of age, and of good moral character; must give evidence of having studied medicine three full years; have spent at least one continuous year at this School; have presented a satisfactory thesis; and have passed the required examinations.

Theses of conspicuous merit are mentioned by title or read at the University Commencement.

The degree of Master of Arts is open to graduates of the School, who are also Bachelors of Arts, and who pursue an approved course of study in Medicine for at least one year after taking the degree of Doctor of Medicine.

LIBRARIES.

The library at the Medical College is open to the student on the deposit of five dollars, to be refunded to him when he may desire, after returning all books.

The College Library at Cambridge is open to the students of the Medical School.

The Boston Public Library, which contains a large collection of medical books, may also be used by students recommended by the Dean.

BOYLSTON MEDICAL SOCIETY.

This society, composed of medical students, meets at stated intervals for the discussion of medical topics, and is presided over by a physician selected by the members. Prizes, in money or books, are awarded annually to the writers of essays judged worthy of such distinction by a committee of physicians selected for that purpose by the society.

FEES AND EXPENSES.

For matriculation, five dollars; for a year, two hundred dollars (if in two payments, at the first, one hundred and twenty dollars; at the second, eighty dollars); for one term alone, one hundred and twenty dollars; for graduation, thirty dollars. Of students who do not pay in advance, a bond for \$300, executed by two sufficient bondsmen, one of whom must be a citizen of Massachusetts, is required. A copy of such bond will be sent on application to the Secretary of the Faculty. To students depositing these bonds, term-bills will be presented a week before the end of the first term, to be paid within two weeks; and also one week or more before Commencement, to be paid on or before the beginning of the next academic year. Such students shall be held

responsible for the payment of fees until they shall have notified the Dean of their intention to withdraw from the School, and have received their bond from the Treasurer. No degree can be conferred till all dues to the School are discharged. The student's general expenses may be reduced, in accordance with his means, to the standard which prevails in other cities. The janitor of the Medical College will always have a list of boarding-houses in the vicinity of the college building, varying in their rate of charges from five to ten dollars a week.

PECUNIARY AID.

Four yearly scholarships have been established, of the value of \$200 each, open to meritorious students who have been at the School for one or two years. Only those needing assistance are expected to apply, and from such those holding the highest rank will have the preference.

Assistants to the Professors of Physiology and Chemistry are annually appointed from such deserving students as need aid. Students holding these positions are exempt from the payment of the fee for tuition during their term of service.

Students on joining the school must enter their names with the Secretary of the faculty.

COURSE OF STUDY FOR GRADUATES.

For the purpose of affording to those who are already graduates in medicine additional facilities for pursuing clinical, laboratory, and other studies, for which they had not previously found leisure, in such subjects as may specially interest them, and as a substitute in part for the opportunities heretofore sought for in Europe, the Faculty have established a post-graduate course, of which the following is a programme :—

Histology.—The various methods of examining the different tissues are employed, and opportunities for original research are offered. Fee twenty dollars per term.

Physiology.—Opportunities for original investigation in the Physiological laboratory. Fee thirty dollars per term.

Medical Chemistry.—Practical instruction in the Chemical laboratory in the analysis of the urine and other animal fluids in health and disease, and of poisons; examination of blood stains and other objects connected with medico-legal investigations, with the application of the microscope to these processes. General analysis, also, if desired. Laboratory fee thirty dollars per term.

Pathological Anatomy.—Practical instruction in Pathological Histology and the examination of specimens in the Microscopical laboratory; and opportunity for witnessing and making autopsies. Fee twenty dollars per term.

Surgery.—A practical course of operative surgery, and instruction

in the application of bandages and apparatus. Fee twenty-five dollars per term.

Auscultation, Percussion, and Laryngoscopy practically taught, and diseases of the larynx demonstrated by the aid of the oxyhydrogen light. Fee twenty dollars per term.

Ophthalmology. — Clinical instruction, lectures on diseases of the eye, and demonstrations of the methods of performing operations. Exercises in the use of the ophthalmoscope. Fee twenty-five dollars per term.

Otology. — Lectures and clinical instruction on diseases of the ear. Fee fifteen dollars per term.

Dermatology. — Clinical instruction in diseases of the skin, illustrated by patients in this department of the Massachusetts General Hospital Lectures. Fee twenty-five dollars per term.

Syphilis. — Clinical instruction at the Boston Dispensary and the Marine Hospital. (Second term.) Fee fifteen dollars.

Psychological Medicine. — Lectures on mental diseases. (Second term). Fee five dollars.

Diseases of the Nervous System. — Practical illustrations of the application of various forms of electricity. Lectures. Fee fifteen dollars per term.

Gynæcology. — Clinical instruction in diseases of women. Fee ten dollars.

Obstetrics. — Cases supplied. A course of operative midwifery. Fee ten dollars.


Those pursuing this course may elect the studies to which they will give their attention, and allot the time they will devote to each. They will be exempt, unless at their option, from examinations, and may obtain a certificate of attendance on this course of advanced study. On payment of the full fee for the course, they will have the privilege of attending any of the other exercises of the Medical School, the use of its laboratories and library, and all other rights accorded by the University.

Graduates of other medical schools may obtain the degree of M.D. at this University after a year's study in the graduates' course. The required examinations may be passed in such order as is desired, but only at the stated seasons.

The fee for a year is	\$200
„ for one term	120

For any of the special courses, such fees as are above specified.

For further information or catalogues, address DR. R. H. FITZ, *Secretary*, 108 Boylston Street, Boston, Mass.

 The Medical College is on North Grove Street, Boston.

EXAMINATION PAPERS.

(*June Examination, 1876.*)

First Year's Studies.

ANATOMY. — PROF. HOLMES.

Describe the following parts : —

1. Synovial membranes.
 2. The glands of the skin.
 3. The epidermis.
 4. The bones of the tarsus.
 5. The articulation of the head with the vertebrae.
 6. The articulation of the pubes.
 7. The soleus.
 8. The rhomboidei.
 9. The internal iliac artery.
 10. The arteries of the axilla.
 11. The veins of the neck.
 12. The vena azygos.
 13. The connections of the duodenum.
 14. The foramen of Winslow.
 15. The glands of the stomach.
 16. The tubercula quadrigemina.
 17. The 4th ventricle.
 18. The ganglions of the neck.
 19. The motor nerves of the eye.
 20. The tear passages.
-

PHYSIOLOGY. — PROF. BOWDITCH.

1. State what is meant by a "nutriment," and give examples of the three different classes from both the animal and vegetable kingdoms.
2. What fluids act upon the food in the stomach, and what is their effect?
3. What reason is there for supposing that albuminoid substances may be absorbed without being changed into "peptones"?
4. How may the work performed by the heart in a day be estimated?
5. Explain how the elasticity of the arteries favors the circulation?
6. Explain the function of the vaso-constrictor nerves.
7. Describe the formation and movements of the lymph.
8. Describe Liebig's classification of foods, with the arguments for and against it.
9. Explain the vocal and respiratory functions of the larynx.
10. Explain the double effect of muscular activity in the production of animal heat.

11. Explain the normal variations of temperature of the human body.
12. What is meant by "vicarious function"? Give examples.
13. Describe the influence of the nervous system on the salivary secretion.
14. What is "residual" air, and how may its amount be determined?
15. Explain the mechanism of accommodation in the eye.
16. What is a reflex action? Illustrate by a diagram of the spinal cord.
17. What are tastes, properly so called, and by what nerves do we perceive them?
18. What are the functions of the tubercula quadrigemina?
19. Describe the formation of the allantois.
20. Why are the anterior extremities of the foetus relatively more developed than the posterior ones?

GENERAL CHEMISTRY.—PROF. WOOD.

[In addition to the following questions, a written report of the analysis of a solution containing inorganic substances was required.]

1. Define normal, acid, basic, and double salts. Give examples. Define a deliquescent and an efflorescent salt. What is the difference between an acid and an anhydride?
2. Give the names of the metric units of length, capacity, and weight, with their English equivalents. How are multiples and divisors of metric units designated?
3. How does Sulphur occur in nature? From what, and how is the sulphur of commerce prepared? For what is it used? What is the difference between a sulphide, a sulphite, and a sulphate?
4. Mention the principal ores, and the most important physical properties of iron. What is the difference between wrought iron, cast iron, and steel. How do you distinguish between ferrous and ferric salts?
5. Complete the following half equations:—

1. $\text{NaCl} + \text{H}_2\text{SO}_4 =$	6. $\text{Cu} + 2 \text{H}_2\text{SO}_4 =$
2. $\text{Zn} + \text{H}_2\text{SO}_4 =$	7. $2 \text{KClO}_3 \text{ (heated)} =$
3. $3 \text{Cu} + 8 \text{HNO}_3 =$	8. $\text{MnO}_2 + 4 \text{HCl} =$
4. $\text{KNO}_3 + \text{H}_2\text{SO}_4 =$	9. $\text{SO}_2 + 2 \text{Cl} + 2 \text{H}_2\text{O} =$
5. $\text{CaCO}_3 + 2 \text{HCl} =$	

What processes do equations 1—8 respectively represent? What property of chlorine is represented in equation 9? Explain its action?

6. What precautions are necessary in the precipitation of the Zinc Group, and why? What is the blowpipe test for Mn? What compound is formed?

7. Describe Marsh's test, giving every reaction by which Arsenic and Antimony may be distinguished.

8. Why do you test for NH_3 and the salts of Iron in the original solution?

9. Given a solution to which Fe_2Cl_6 imparts a deep red color: to what may this reaction be due, and how will you decide to what it is due?

10. Given four aqueous solutions, containing respectively MgCl_2 , $(\text{NH}_4)_2\text{C}_2\text{O}_4$, AgNO_3 , CdSO_4 : how will you distinguish these by chemical tests?

11. Define organic Chemistry. Define proximate analysis, and ultimate analysis. Describe briefly the process for the quantitative analysis of a solid compound of Carbon, Hydrogen, and Oxygen. Define empirical, rational, and molecular formulae.

12. Write down the rational formulae for ethane, ethyl alcohol, ether, ethylamine, acetic anhydride, acetic aldehyde, acetamide. Describe the properties and the mode of preparation of ethyl alcohol and ether.

13. What is an alkaloid? Write all you know about alkaloids. Into what two classes are they divided? What stands in the way of their successful preparation artificially?

14. Describe the tests for Urea, Uric Acid, Grape Sugar, Starch, Strychnia.

Second Year's Studies.

MEDICAL CHEMISTRY. — PROF. WOOD.

[In addition to the following questions, a written report of the analysis of a specimen of urine, and of a mixed organic and inorganic poison, was required.]

1. What is the reaction of normal urine, and to what is it due? Under what circumstances may the urine become alkaline?

2. What is the normal amount of urea in the urine? How determine the amount quantitatively? To what may a variation from the normal amount be due?

3. What are the properties of and tests for uric acid? What is the normal amount excreted in twenty-four hours?

4. What are the physical properties of the urine in a case of jaundice? What abnormal constituents are present, and how may they be detected?

5. How can you recognize calcic oxalate in the urine? What are the causes of its formation? How diagnose the presence of a calcic oxalate calculus in the kidney?

6. What inferences may be drawn from urine having the following characteristics, and why?

(a) Amount in 24 hours = 1 litre. Reaction = acid. Sp. gr. = 1025
Sediment abundant and fawn-colored.

Uph. = +.	U. = +.	Cl. = sl. —.	E.P. = sl. +.
Ind. = n.	U. = m. +	Sf. = n.	A.P. = sl. —.

Abnormal constituents absent. Sediment = amorphous.

(b) Amount in 24 hours = 800 cub. cent. Reaction = acid. Sp. gr. = 1010. Color = smoky. Sediment = considerable.

Uph. = —.	U. = —.	Cl. = n.	E.P. = —.
Ind. = +.	U. = n.	Sf. = n.	A.P. = —.

Albumen = 1 per cent. Sediment = blood globules, renal epithelium, and transparent, brown-granular and epithelial casts.

7. What is the appearance of a uric acid calculus? How determine its composition?

8. What are the duties of the physician when attending a fatal case of suspected criminal poisoning?

9. In suspected metallic poisoning, what preliminary tests should be applied to the organs and fluids submitted for analysis?

10. What is the fatal dose and period in prussic acid poisoning? What is the antidote for prussic acid? Explain its mode of action.

11. How can you distinguish between arsenic and antimony by Marsh's test? What are the antidotes for arsenic and tartar emetic?

12. Describe Dragendorff's process for the isolation of alkaloids from organic fluids and tissues. State at what stage of the process you test for conia, nicotina, morphia, strychnia, brucia, and atropia.

MATERIA MEDICA.—INSTRUCTOR MARKOE.

I. Name the plant that yields American Veratrum, giving its habitat, active principles, officinal preparations, doses.

II. From what drug is Veratria obtained? By what physical and chemical characteristics is Veratria distinguished from all other alkaloids?

Write a prescription for an ointment containing Veratria and Morphia Sulphate, giving the quantities first in *officinal* and then in metrical weights.

III. Give the name, habitat, active principle, officinal parts, of the Aconite plant, and state which is the most active portion, giving reasons why it should be used to the exclusion of the other.

Dose of Tinct. Aconiti Radicis.

IV. Give the name and habitat of the Colchicum Plant.

Dose of Wine of Colchicum Root. Dose of Wine of Colchicum Seed.

Write a prescription in Latin, without abbreviations, for a *two fluid ounce* mixture, each fluid drachm of which shall contain *five* (5) grains of Potassium Iodide and *six* (6) *minims* of Fluid Extract of Colchicum Seed.

V. 1. From what plant are Belladonna leaves and root obtained? 2. What alkaloid do they contain? 3. What other drug yields the same alkaloid? 4. By what physiological test may this alkaloid be known; and in what doses is it given?

5. Dose of Tinctura Belladonnæ.

6. Dose of Extractum Belladonnæ Alcoholicum.

7. Dose of Extractum Belladonnæ Radicis Fluidum.

Mention the doses of

VI. 1. Acidum Arseniosum.

2. Acidum Carbolicum.

3. Acidum Hydrocyanicum Dilutum.

4. Acidum Tartaricum.

5. Spiritus Ammoniaë Aromaticus.

6. Ammonii Iodidum.

7. Ammonii Chloridum.

8. Antimonii et Potassii Tartras.

9. Liquor Potassii Arsenitis.

10. Pulvis Ipecacuanhæ (as emetic).

VII. 1. Bismuthi Subcarbonas.

2. Camphora.

3. Extractum Cubebæ Fluidum.
4. Digitalinum.
5. Tinctura Ferri Chloridi.
6. Syrupus Ferri Iodidi.
7. Ferri Sulphas.
8. Extractum Gelsemii Fluidum.
9. Pilula Hydrargyri.
10. Chloralis Hydras.

- VIII.
1. Iodoformum.
 2. Ext. Hyoscyami Alcoholicum.
 3. Pulvis Ipecacuanhæ Compositus.
 4. Lupulina.
 5. Magnesia.
 6. Magnesii Sulphas.
 7. Morphiæ Sulphas.
 8. Tinctura Opii Camphorata.
 9. Tinctura Opii Deodorata.
 10. Extractum Opii.

If the following prescriptions contain errors, point them out and make the necessary corrections :—

- IX. 1. R Strychniæ Sulphatis, grs. xxx.
 Syrupi Zingiberis, f ʒj.
 Aquæ Cinnamomi, f ʒv.
 M.

Sig. A teaspoonful thrice daily.

2. *For Dysentery.*

- R Plumbi Acetatis, gr. xx.
 Pulv. Opii, gr. xl.
 M. ft. pil. No. X.

Sig. One every three hours.

3. R Quiniæ Sulphatis.
 Ferri Sulphatis Exsiccatae, aa gr. x.
 Ext. Nucis Vomicae, gr. xxx.
 M. ft. pil. No. X.
 Sig. One thrice daily.

4. R Tinct. Ferri Chloridi, f ʒj.
 Potasii Iodidi, ʒss.
 Aquæ, f ʒj.
 M.

5. *Expectorant Mixture.*

- R Antimonii et Potasii Tartratis, gr. v.
 Syrupi Scillæ.

Liquor Morphiae Sulphatis,	aa f ʒj.
Mucilaginis Acaciae.	
Syrupi,	aa f ʒss.
M.	

Sig. A tablespoonful three times daily.

X.	1.	℞	Potassii Permanganatis,	gr. x.
			Acidi Tannici,	gr. xxx.
			Aquaë,	f ʒiv.
			M.	
2.		℞	Hydrargyri Chloridi Corrosivi,	gr. iv.
			Potassii Iodidi,	gr. v.
			Aquaë,	f ʒij.
			M.	
3.		℞	Potassii Iodidi,	gr. xxiv.
			Acidi Tartarici,	gr. xxx.
			Syrupi,	f ʒss.
			Aquaë,	f ʒss.
4.		℞	Bismuthi et Ammonii Citratis,	gr. xxxij.
			Acidi Phosphorici Diluti,	f ʒiv.
			Syrupi Aurantii Corticis,	f ʒiss.
			M.	

Sig. One teaspoonful three times daily.

PATHOLOGICAL ANATOMY. — ASST. PROF. FITZ.

1. An embolus, — of what may it be composed, and what are the local results of embolism?
2. Give some of the causes of fatty degeneration.
3. How are secondary tumors supposed to be produced?
4. What conditions may cause a varying shape of the skull?
5. The appearances of the brain in chronic hydrocephalus.
6. Some of the causes of acute cerebral meningitis.
7. What changes take place in the spine in Pott's disease?
8. The appearances of tubercular pericarditis.
9. What anatomical changes produce insufficiency of the valves of the heart.
10. The difference in the appearance of a hypertrophied and a dilated heart.
11. What is a collapsed lung, and how does it look?
12. How would you recognize a hypostatic pneumonia?
13. Give the origin of calcareous nodules in the lungs.
14. What kinds of ulcers occur in the intestine?
15. What may enlargement of the liver be due to?
16. The varying appearances in chronic interstitial hepatitis.

17. To what changes does a large white kidney owe its appearances?
 18. The cause and appearances of hydronephrosis.
 19. What local changes may result from a pelvic peritonitis?
 20. What are the appearances of inflammation of the Fallopian tubes?
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Third Year's Studies.

THERAPEUTICS. — PROF. EDES.

1. What substances are used to promote sleep, and in what doses? What indications would govern your choice among them?
 2. What is the action of strychnia, for what is it used, and what drugs are its physiological antidotes?
 3. If a healthy man takes a glass of wine, what happens to it and to him? If he takes one or more glasses of brandy? If he repeats the latter process for some days?
 4. What is the difference in the action of digitalis, aconite, veratrum viride, and for what is each used?
 5. What drugs are supposed to constitute material for the nutrition of various tissues in the body? What are the indications for use, and methods of administration?
 6. What are the clinical phenomena observed after use of quinia? What experiments have been made upon its physiological action? What have been used instead of quinia in intermittent fever, and with what success?
 7. What are the action and uses of iodide of potassium? of arsenic?
 8. What is the action of cold baths? When and how should they be given, and when not?
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OBSTETRICS. — PROF. BUCKINGHAM.

1. Mobility of pelvic articulations.
2. Anchylosis of the coccyx.
3. Fœtal Auscultation, — what is to be learned by it? How is it to be performed, and when? (The placental murmur is not to be considered under this head.)
4. What disorders of the digestive system are occasioned by pregnancy? Can they be relieved, and how?
5. What is your duty, and what your privilege, as a witness in court? Should your testimony be any different upon direct and upon cross examination?
6. At your first examination of the patient, you find that the liquor amnii has to a great extent been drained away; the os uteri is far enough open to admit three fingers, and is dilatable; the vagina is far from

moist; one hand is in the vagina; one half the length of its forearm protrudes from the os uteri; the pulse is rapid, and the patient restless. — Go on with the diagnosis, and proper treatment of the case.

7. In case of breech presentation and delivery, what is meant by too early extension of the head? Describe it, and how to avoid it.

8. Under what circumstances, in case of a breech presentation, would you apply forceps? when? where? how?

9. Give the exact anatomical relations of the human ovary, and state the several tissues and structures of which it is made up?

10. Describe the vessels of the umbilical cord as they exist at term: give the origin, the course, and the anatomical peculiarities and function of each of them.

11. In a presentation of the vertex, with the head well flexed, the ear of the anterior half of the child remains at or near a certain part of the mother's pelvis, from the time the head enters the pelvis, till rotation is nearly completed. What is that part of the mother's pelvis? Under the conditions just given, in a first position, anterior variety ("left occipito-cotyloid") at or near what part of the pelvis will the posterior ear be placed? What suture, prolonged, guides the examining finger to the ear?

SURGERY.—PROF. BIGELOW.

1. Pott's Disease.
2. Hip Dislocation.
3. Aneurism.
4. Hydrocele.
5. Adenocoele.
6. Stone.
7. Felon.
8. Fractures of the Elbow.
9. Chancre.
10. Cataract.

CLINICAL SURGERY.—PROF. CHEEVER.

[In addition to the following questions, the clinical report of a surgical case is required.]

1. Senile Gangrene: — causes, — symptoms, — treatment.
2. Causes of retention of urine, and appropriate modes of relieving it.
3. Carbuncle.
4. Acute Abscess: — symptoms, — course, — termination.
5. Describe Surgical Fever.
6. Hospital Gangrene, — appearances, — course, — termination.
7. Epididymitis.
8. Piles.
9. Describe the Urethral triangle of the Perineum.
10. Tie the Radial artery in the upper third of the arm.

THEORY AND PRACTICE. — PROF. MINOT.

1. With what diseases is cyanosis of the skin most frequently associated ?
2. Describe the symptoms of fatty degeneration of the heart.
3. What are the principal symptoms of Addison's disease of the suprarenal capsules ?
4. In what respects does pleurisy in children differ from that in adults ?
5. What are the chief points in the diagnosis between the first stage of scarlatina and that of varioloid ?
6. How should you distinguish between varicella and varioloid ?
7. What are the principal signs of retarded development in infants ?
8. Name the order in which the milk teeth appear.
9. How ought we to be guided in the use of stimulants in typhoid fever ?
10. Of what diseases is hæmaturia a symptom ?
11. What is the treatment of chronic albuminuria ?
12. Mention the principal symptoms of diphtheria.
13. What are some of the most common causes of uterine displacements ?
14. Of what diseases is aphonia a symptom ?
15. Mention some of the indications furnished by the tongue in the diagnosis of disease.

CLINICAL MEDICINE. — PROF. ELLIS.

Give the differential diagnosis, the prognosis, and treatment of as many of these cases as the time will allow. Assume that symptoms not mentioned were wanting; but as omissions, intentional or not, may occur, state them, if essential.

A woman, about 50 years of age, began to cough two weeks before she was seen; but she gradually improved and went out. The cough returned, became very urgent, and was accompanied by dyspnœa and the expectoration of purulent mucus, the latter often raised with much difficulty. There was fever, increased rapidity of the pulse, and marked prostration, though not sufficient to confine her to her bed.

On examination, sub-crepitant râles were heard in the lower half of the right back, without dulness or change in the voice.

A boy, about 15 years old, had always been troubled by incontinence of urine at night, and for a year or two he had complained that the letters ran together in reading.

With these exceptions, he was well, until the age of 13½, when he had measles, whooping cough, and scarlet fever, within twelve months. After recovery he became irritable, and complained much of his stomach; but in a few months he was well enough to attend school.

A month before he was seen, he had tonsillitis, and complained of pain in the right eye. Suddenly it was noticed that the mouth was drawn to the left, that the right eye could not be closed, and that the upper lid could not be raised as completely as before. The eye was somewhat painful, owing to exposure to the air. The speech was unaffected.

When seen, no improvement had taken place. The mind was clear, and the hearing unaffected. No paralysis elsewhere.

A bar-tender, 45 years old, was in the habit of drinking large quantities of gin. Two years before he was seen, he began to suffer from attacks of vomiting. The latter became more frequent, and was accompanied by diarrhoea, pain in the hepatic region, and slight jaundice. The matter vomited often contained blood. He also had epistaxis several times, and one severe attack of epileptiform convulsions. When seen, there was marked jaundice, slight pitting of the lower extremities, enlarged abdominal veins, ascites, increased splenic dulness, and tenderness on pressure below the right ribs. Pulse 84, feeble but regular. The urine showed a sp. gr. of 1.020; bile pigment; a trace of albumen; a few blood corpuscles, but no casts.

A man, 56 years of age, in 1866 was suddenly seized with severe pain in the epigastrium, after standing the day before on a cold floor. This pain returned in 1870, while he was worn by business cares, and since then he has been liable to such attacks, from time to time; the pain being quite severe, and, though somewhat irregular, generally coming on in the night, about 7 hours after eating, accompanied by chills. It has rarely appeared as often as once a day, and never more than once. Though it comes on rather gradually, it sometimes ceases instantaneously. There have been no ordinary dyspeptic symptoms, though he thinks indigestion in diet has sometimes been the exciting cause. Never any jaundice, nausea, or vomiting. Twelve or thirteen years ago passed a renal calculus. Though a great smoker for a number of years, he gave up tobacco in 1872.

A man, 27 years old, was attacked, a year before he was seen, with headache. This was soon followed by loss of consciousness. He was found lying on the ground in convulsions. The latter recurred two or three weeks before he sought advice, and he has suffered more or less from headache. Early in the disease, he was totally blind for three days; and remains so with one eye, though he sees perfectly well with the other. The mind has been clear. Slight cough occasionally, but nothing marked. Much dyspnoea and some palpitation. Appetite variable: none at time of visit. Urine never very scanty, and at times quite abundant. P. 116. He had lost both flesh and strength. The cardiac dulness extended some distance to the left nipple. Pulsations of the heart quite strong. No valvular murmur. Abundant sub-crepitant and crumpling râles were heard on the lower third of the back, on both sides. The urine showed a sp. gr. of 1013. Albumen by heat and nitric acid. No casts.

A man, 32 years old, presented himself in April, stating that he had been troubled with cramp-like pains in the lower extremities all winter, so severe as to keep him awake. For a long time he had noticed that he became dizzy on attempting to walk on a narrow plank. Six weeks before he asked advice, he noticed a loss of power in the ankles, but not in other parts of the legs. He spoke also of numbness in the soles of the feet, particularly of the right foot; and, for four or five months, in the legs and hands. The appetite and digestion were good.

Was unable to stand with the eyes shut and both feet close together, and still less on one foot. Could not walk with the eyes shut; and the gait, under any circumstances, was very peculiar. The toes were raised well: but the legs were thrown forward, with a wavering, uncertain motion; but the gait improved when he looked at his legs.

